

REVISION OF  
THE FLORA OF THE BOMBAY PRESIDENCY.

BY

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PART XVII

(With 3 plates and 1 text figure.)

(Continued from page 275 of this volume.)

ORCHIDACEÆ.

BY

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12. PACHYSTOMA Blume (not in Cke.).

Terrestrial herbs; rhizome underground, nodose. Leaves 1 or 2, long, narrow, plaited, often post-floral. Scape pale, with many sheaths. Flowers racemed, pendulous, moderate sized; bracts large, scarious. Sepals and petals subequal, lateral sepals adnate to the base of the column. Lip sessile at the base of the footless column, erect, side lobes oblong, midlobe small; disk with 3-5 deeply crested or fimbriate ridges. Column slender, clavate upwards. Anther dorsal, 4-celled; pollinia 8, pyriform.

Species 8.—British India, China, Malay Archipelago, Papuasias, N. Australia, New Caledonia.

1. *Pachystoma senile* Reichb. f. in Bonpland. iii, 250; Hook. f. in F. B. I. v. 812; King & Pantl. Ann. Roy. Bot. Gard. Calc. viii, t. 140; Ridley F., Malay Pen. iv (1924) 116 (*P. sessile per errorem*); Brühl Orchids Sikkim (1926) 75; Fischer Fl. Madras pt. viii (1928) 1425.—*P. Smithianum*, *Edgeworthii*, *montanum* et *Lindleyanum* Reichb. f. l.c.—*Apaturia senilis*, *Smithiana* et *montana* Lindl. in Wall. Cat. 3739, 3737, 3738; Gen. & Sp. Orchid. 130, 131.—*A. Lindleyana* Wight l.c. t. 1662.

*Description*: Rhizome 2.5-5 cm. Leaf solitary, very long and narrow. Scape with raceme 20-70 cm. long, white or nearly so. Sheaths 12 mm.-5 cm. long. Flowers about 12 mm. long, glandular pubescent, white, greenish or pinkish. Bracts scarious, longer or shorter than the flowers, strongly nerved. Sepals membranous, acute or acuminate, 5-nerved. Petals narrowly spatulate, acuminate, 3-nerved. Mentum very short. Lip from oblong to nearly orbicular, claw very short; side lobes large, obtuse or subacute; midlobe as long or longer, oblong or obovate, retuse or pointed, purplish; disk with 5, rarely 3 crested ridges from the base to the midlobe, and there thickened. Column puberulous.

*Locality*: S. M. Country: Belgaum, in black soil of grass land, 2,600 ft., rainfall 50 in. (T. R. Bell 940! 941! 942! 943!).

Flowered beginning of March 1926. 'The flowers were out at the beginning of March. The leaves were not fully up and grown until towards the middle of August and there was not a vestige above ground before the middle of July.' (T. R. Bell in *epist.*)

*Distribution*: Plains and foot-hills of N. India, from Garhwal to Sikkim, Khasia Hills, Manipur, Malay Peninsula, W. Ghats of Bombay and Madras (apparently not in Ceylon).

13. THUNIA Reichb. f. (Cke. ii, 692).

Species 4.—Indo-Malayan. There is only 1 species in the Presidency.

1. *Thunia venosa* Rolfe in Orchid Rev. xiii (1905) 206; Cke. ii, 692; Haines Bot. Bih. & Or. 1167; Fischer Fl. Madras, pt. viii (1928) 1427.—*Phajus albus* Lindl. (*partim*); Hook. f. in F.B.I. v, 818 (*partim*).

This species had been mixed up with *Thunia alba* Reichb. f. This latter species can, according to Rolfe, be distinguished by the somewhat elongate raceme, by more and much larger flowers, by a yellow disk to the lip and a few lilac radiating veins on the side lobes.

*Distribution*: Kumaon, Mussoorie, Sikkim, Assam, Khasia, Burma, Chota Nagpur, W. Ghats of Bombay Pres., Travancore.

14. CALANTHE Br. (not in Cke.)

Terrestrial herbs, often pseudobulbous with a short or tall, leafy stem. Leaves plaited. Scape axillary, terminal or lateral from a leafy pseudobulb. Flowers medium sized, racemed. Sepals subequal, spreading, rarely connivent. Petals broad or narrow. Lip adnate to the top or base of column, 3-lobed, midlobe often 2-fid, disk lamellate or tubercled, with or without a spur. Column long or short, obliquely truncate; foot O. Anther conical or convex, 2-celled; pollinia 8, waxy, cohering in pairs by a granular viscus.

Species 120.—Warm countries. One species in the Bombay Pres.

1. *Calanthe Masuca* Lindl. in Wall. Cat. 7337; Gen. & Sp. Orchid. 240; Bot. Mag. t. 4541; Hook. f. in F.B.I. v., 850; King and Pantl. Ann. Roy. Bot. Gard. Calc. viii, t. 234; Fischer Fl. Madras, pt. viii (1928) 1432; Brühl Orchids of Sikkim (1926) 108.—*C. versicolor* Lindl. Sert. Orchid. t. 42; Bot. Reg. 1844, sub tab. 37.—*C. emarginata* Wight Ic. t. 918.—*C. Wightii* Reichb. f. in Walp. Ann. vi, 933.—*Bletia Masuca* Don Prodr. 30.

*Description*: A terrestrial herb. Stem short, stout. Leaves elliptic-ovate to lanceolate, acuminate, 25–50 cm. long, 7–15 cm. broad, sessile, or base tapering into a usually short petiole, usually sparsely pubescent, at least below, sometimes glabrescent. Scape lateral, stout, with the lax-flowered raceme up to 90 cm. long, sparsely puberulous; bracts large, 20–25 mm. long, ovate-lanceolate, herbaceous, puberulous. Pedicels with ovary 3–3.7 cm. long. Flowers usually pale or dark purple, sometimes pale rose or white with a purple lip; lip always bright coloured, 20–25 mm. long, puberulous. Sepals lanceolate, up to 3.7 cm. long, lip hardly exceeding the sepals, side lobes short, falcate-oblong, midlobe much larger, broadly or cuneately reniform, spur linear-subspathulate, longer than the sepals. Capsule 3.5 cm. long.

*Locality*: N. Kanara: Malemanighat (Sedgwick 7216!).

*Distribution*: Tropical Himalaya from Nepal to Sikkim (1,500–4,000 ft.) Deccan Peninsula, W. Ghats of Madras Pres. (3,000–6,000 ft.), Java.

15. EULOPHIA R. Br. (Cke. ii, 693).

Species 200.—Warm countries of the Old World.

Cooke gives 4 species. We add another not known from the Presidency before: *Eulophia campestris* Wall.

A. Column not produced into a foot

I. Leaves and flowers coetaneous or nearly so

1. Lip longer than broad; side lobes of lip short or O  
 a. Sepals 12 mm. long; side lobes of lip O ... 1. *E. ochreatea*.

b. Sepals 2.2–3 cm. long; side lobes of lip 3 mm.  
 long ... 2. *E. herbacea*.

2. Lip broader than long; disk of lip with 3 crested  
 nerves ... 3. *E. pratensis*.

II. Flowers appearing long before the leaves ... 4. *E. campestris*.

B. Column produced into a foot ... 5. *E. nuda*.

1. *Eulophia ochreatea* Lindl. in Journ. Linn. Soc. iii (1858) 24; Dalz. & Gibs. Bomb. Fl. 265; Hook. f. F.B.I. vi, 2; Cke. ii, 693; Fischer Fl. Madras viii (1928) 1435.

*Description*: Cke. l. c.—Tubers sometimes 15 in a line. Scape up to 45 cm. Leaves dark green, plicate. Flowers pale cadmium yellow.

*Locality*: Gujarat: Khodwa, Panch Mahals (Raoji!).—Konkan (Stocks); Salsette, hills east of Tuls Lake, in red earth in fairly open forest (McCann 1651! 1652! 1653!).—S. M. Country: Dharwar (Law).—Kanara (Law).

*Distribution*: Vizagapatam Hills at 3,000 ft.

2. *Eulophia herbacea* Lindl. Gen. & Sp. Orchid. (1833) 182; Dalz. & Gibs. Bomb. Fl. 265; Hook. f. in F.B.I. vi, 2; Cke. ii, 693; Fischer Fl. Madras pt. viii (1928) 1435; Duthie Ann. Roy. Bot. Gard. ix, t. 106.—*E. brachypetala*

Lindl. in Journ. Linn. Soc. iii, 24.—*Limodorum bicolor* Roxb. Fl. Ind. iii, (1832) 469.—*Eulophia carinata* Grah. Cat. p. 202 (non Lindl.)

*Distribution*: W. Himalaya, Garhwal, 4,000–7,000 ft., Bengal, Rungpore, Gujarat, Konkan, Kanara, Bababudan Hills in Mysore.

3. *Eulophia pratensis* Lindl. in Journ. Linn. Soc. iii (1858) 25; Dalz. & Gibs. Bomb. Fl. 264; Hook. f. F.B.I. vi, 4; Cke. ii, 694; Fischer Fl. Madras. pt. viii (1928) 1435.—*E. ramentosa* Wight Ic. t. 1666 (non Lindl.)—*E. virens* Grah. Cat. 202 (non Brown).

*Locality*: *Gujarat*: Panch Mahals (Raoji!).—*Deccan*: Poona (Woodrow 965!); canal-side, Poona (Herb. Econ. Bot.!).; Pishan, 6 miles W. of Poona (Tukaram!, Paranjpe!, Gammie!).—*W. Ghats*: Panchgani (A. St. J. Cooke).—*S. M. Country*: Belgaum (Ritchie 1421); Dharwar, in grass, 2,400 ft., rainfall 34 in. (Bourne 3481!); Havasbhavi in Dharwar Dist., in long grass, not common, 2,000 ft., rainfall 33 in. (Sedgwick 2146!).—*N. Kanara*: Haveri (Talbot 2225!).—Hook. f. says from the Konkan southwards. We have not seen any specimen from those parts.

*Flowers*: Nov. 1919 (Dharwar), Dec. 1917 (Dharwar).

*Distribution*: Deccan, S. M. Country, W. Ghats of Madras Pres.

4. *Eulophia campestris* Wall. Cat. 7617; Lindl. Gen. & Sp. Orchid. 185; in Journ. Linn. Soc. iii, 24 (*excl. syn.* Wight); Hook. f. F. B. I., vi, 4; Haines Bot. Bih. & Or. 1171.—*E. ramentacea et rupestris* Lindl. in Wall. Cat. 7367, 7368; Gen. & Sp. Orchid. l.c.—*E. hemileuca* Lindl. in Journ. Linn. Soc. iii, 25.—*Limodorum ramentaceum* Roxb. Hort. Beng. (1814) 69; Fl. Ind. iii., 46—*Bletia Dabia* Don Prodr. 30.

*Description*: A slender orchid. Flowering stem 15–16 cm., rising laterally from the apex of a chain of erect ovoid tubers which are connected at their base (Haines). Sheaths subappressed, acute. Leaves 2, rising from the apex of the slender sheathing pseudostem, developing long after the plant has flowered, 25–40 cm. long, linear, acuminate. Scape sheathed at intervals by loose membranous bracts. Flowers many in lax racemes, sometimes secund or subsecund, or nodding on slender pedicels. Floral bracts variable, membranous, linear or lanceolate, acuminate, usually longer than the slenderly stalked ovary. Sepals slightly attached to the base of the lip, 8–12 mm., linear-lanceolate, or linear-oblong, acute or acuminate, 5–7-nerved. Petals elliptic or broadly oblong, obtuse, or lanceolate, as or nearly as long as the sepals, 5–6 mm. broad, broader than the sepals, 3–5 nerved, greenish or yellowish, with red or brown clouds. Lip 9–11 mm. long, oblong or cuneate-obovate; side lobes short, rounded or subacute, erect or upcurved, adnate to the column, veined with red, midlobe orbicular, quadrate or oblong, crenulate, purple? or yellow?, basal portion of disk with 3 median lamellae, ending in a fimbriate or tubercled patch on the terminal lobe. Spur short or hardly any, obtuse, conical subclavate. Column as long as the lip, slender, without a foot or scarcely any. Pollinia 2, broad, notched and perforated near the base; caudicle stout; gland elongate. Capsule 18 mm. long, ellipsoid.

*Note*.—The various botanical writers do not agree on several details of morphology. Their statements show that the plant is an extremely variable one or that further observations are required on several points. We mention only a few:

Tuber:	'From a deformed tuber.' (Hook. f.).
	'From the last of a chain of erect tubers which are connected at their base.' (Haines).
Colour of flower:	'Flowers yellowish or green with pink or purple markings.'
	'Flowers pale pink with darker lines.' (Brühl).
	'Sepals yellow or green, striped with pink.' (Hook. f.).
	'Sepals and lateral petals green. Lip white, strongly green-veined.' (Hallberg in MS.).
	'Sepals greenish outside, brownish inside.' (Haines).
	'Petals greenish or yellowish with red or brown clouds.' (Haines).
	'Side lobes of lip beautifully veined with red.' (Haines).
	'Midlobe usually purple.' (Hook. f. and Duthie).
	'Midlobe yellow.' (Haines).

- Nerves of sepals : 'Sepals 5-nerved.' (Haines).  
'Sepals 5-7-nerved.' (Hook. f. and Duthie).
- Size of sepals and petals : 'Petals broader than the sepals.' (Haines).  
'Petals narrower than the sepals.' (Hook. f. and Duthie).
- Shape of petals : 'Petals oblanceolate.' (Hook. f. and Duthie).  
'Petals elliptic or broadly oblong.' (Haines).  
We found them lanceolate.
- Ridges on palate of lip : '3 median lamellae.' (Hook. f. and Duthie, Brühl).  
'2 crenulate lamellae.' (Haines).  
Our specimen shows 2 lamellae.

*Locality* : Konkan : Bombay, Victoria Gardens, wild (Hallberg 15377 !).

*Flowers* : April in Bombay.

*Distribution* : Baluchistan, Afghanistan, sub-Himalayan tracts of Rohilkhand and N. Oudh, Nepal, Sikkim (Terai and Duars), Bengal, Chota Nagpur, Chittagong, Upper Burma, Deccan.

5. *Eulophia nuda* Lindl in Wall. Cat. (1823) 7371 : Hook. f. F.B.I. vi, 5 ; King & Pantl. in Ann. Roy. Bot. Gard. Calc. viii (1898) 180, t. 243 ; Duthie *od. l.* ix, pt. ii, 127 ; Prain Beng. Pl. 1016 ; Cke. ii, 695 ; Duthie Fl. Upper Gang. Plain iii, pt. ii (1920) 200 ; Haines Bot. Bih. & Or. 1171 ; Brühl Orchids Sikkim (1926) 109 ; Fischer Fl. Madras viii (1928) 1435 ; Trim. Fl. Ceyl. pt. iv (1898) 177.—*E. bicolor* Dalz. in Kew Journ. Bot. iii (1851) 343 ; Dalz. & Gibs. Bomb. Fl. 264.—*Cyrtopera fusca* Wight Ic. (1852) t. 1690 (*Cke. habet Cyrtopera per errorem*).—*C. nuda* Reichb. f. in Flora (1872) 274.—*C. mysorensis* Lindl. in Journ. Linn. Soc. iii, 32.

*Description* : Cke. ii, 694. More complete in Duthie Fl. Upper Gang. Plain iii, 200.

*Locality* : Konkan : Ambenali at foot of Mahableswar (Blatter & McCann !).—*S. M. Country* : Ramghat (Ritchie !); Amba, Manoli forest (Bhide !); Londa (Ahmed Khan 2541 !).—*N. Kanara* : Kalanaddi (Ritchie 708) ; foot of Arbail Ghat, 800 ft. (Sedgwick 6646 !).

*Flowers* : Jan. 1917 (Londa).

*Fruit*. Oct. 1919 (N. Kanara).

*Distribution* : Tropical Himalaya from Nepal to Sikkim, N. Oudh, Chota Nagpur, Assam, Khasia Hills, Manipur, Burma, Pegu, Tenasserim, W. Peninsula, W. Ghats of Madras Pres., 2,000-7,000 ft., Vizagapatam Hills at 3,800 ft., Ceylon.

#### 16. GEODORUM Jackson (Cke. ii, 695).

Species 10.—Indo-Malayan.

One species in the Bombay Pres. We follow Fischer in changing *Geodorum dilatatum* R. Br. into *G. densiflorum* Schlechter.

1. *Geodorum densiflorum* Schlechter in Fedde Report Bëih. iv (1919) 259 ; Fischer Fl. Madras. viii (1928) 1437.—*Limodorum densiflorum* Lam. Encycl. iii, 516.—*Geodorum purpureum* Hook. f. F. B. I. vi (1890) 16 ; Dalz & Gibs. Bomb. Fl. 266 ; King & Pantl. in Ann. Roy. Bot. Gard. Calc. viii (1898) 181, t. 245 ; Duthie *od. l.* ix, pt. ii, 130.—*G. dilatatum* R. Br. in Ait. Hort. Kew. ed. 2, v (1813) 207 ; F. B. I. vi, 17 ; Wight Ic. t. 912 ; Prain Beng. Pl. 1017 ; Cke. ii, 695 ; Haines Bot. Bih. & Or. 1170 ; Duthie Fl. Upper Gang. Plain iii, pt. ii (1920) 203.—*Limodorum recurvum* Roxb. Corom. Pl. i (1795) t. 30 ; Fl. Ind. iii (1832) 469.

*Description and Locality* : Cke. ii, 695.

*Distribution* : Dehra Dun, Nepal, Sikkim, Bhutan, Assam, Bengal, Andaman Islands, Konkan, N. Kanara, all districts of the Madras Pres. between 200-3,000 ft., Ceylon, China.

#### 17. CYMBIDIUM Swartz (Cke. ii, 696).

Species 30.—Africa to Australia.

1. *Cymbidium aloifolium* Swartz in Nov. Act. Upsal. vi (1799) 73 ; Hook. f. F.B.I. vi, 10 (*partim*) ; Lindl. Gen. & Sp. Orchid. Grah. Cat. 203 ; Dalz. &

Gibs. Bomb. Fl. 266; Roxb. Fl. Ind. iii (1832) 458; Wight Ic. tt. 1687, 1688; King & Pantl. in Ann. Roy. Bot. Gard. Calc. viii (1898) 189, t. 252; Duthie *ead. l.* ix, pt. 2, 136; Fl. Upper Gang. Plain iii, pt. ii (1920) 204; Cke. ii, 696; Brühl Orchids Sikkim (1926) 115; Fischer Fl. Madras, pt. viii (1928) 1436.—*C. bicolor* Hook. f. F. B. I. vi, 11 (*non* Lindl.); Trim. Fl. Ceyl. iv (1898) 179.—*Epidendrum pendulum* Roxb. Corom. Pl. t. 44.

*Description*: Cke. ii, 696.

*Locality*: Add: *Konkan*: Savantvadi at Tamboli (F. X. Miranda!).

*Flowers*: May 1903 (Poona, in garden).

*Fruit*: Jan. (Savantvadi).

*Distribution*: Sikkim, Bengal, Assam, Andaman Islands, Konkan, Kanara, all hilly tracts of Madras Pres., 100-3,500 ft.

#### 18. SARCOCHILUS Br. (Cke. ii, 697).

Species about 40.—Indo-Malayan, Polynesian.

We retain the 2 species given by Cooke.

- |  |     |                             |
|--|-----|-----------------------------|
| 1. Racemes shorter than the leaves     | ... | 1. <i>S. viridiflorus</i> . |
| 2. Racemes much longer than the leaves | ... | 2. <i>S. maculatus</i> .    |

1. *Sarcophilus viridiflorus* T. Cooke (*non* Hook. f. in F. B. I. vi, 38); Cke. ii, 697.—*Saccolabium viridiflorum* Lindl. in Journ. Linn. Soc. iii (1858) 36; Hook. f. F. B. I. vi, 63.—*Micropera viridiflora* Dalz. in Kew Journ. Bot. iii (1851) 282.

*Description*: Cke. l. c.

*Locality*: *Konkan* (Dalzell).—*W. Ghats*: Mahableshwar (Cooke!); Koina valley below Mahableshwar (Cooke); Castle Rock (Bhide!); Amboli Ghat (Gammie 15067!).—*S. M. Country*: Amba (Bhide!).—*N. Kanara*: Usheli (Ritchie 1426); Chandwar (Ritchie 1426); Tinai Ghat (Bhide!).

*Distribution*: Endemic in the Bombay Pres.

2. *Sarcophilus maculatus* Benth. in Benth. & Hook. f. Gen. Pl. iii (1883) 575; Cke. ii, 698.—*Saccolabium maculatum* Hook. f. F. B. I. vi (1890) 64.—*Micropera maculata* Dalz. in Kew Journ. Bot. iii (1851) 282; Dalz. & Gibs. Bomb. Fl. 263.

*Description*, etc.: Cke. ii, 698.

*Locality*: *W. Ghats*: (Dalzell); Phunda Ghat (Ritchie 1427!).—*N. Kanara*: Idigangi (Bell); Kadra (Bell!); Yellapur 1,600 ft. (Sedgwick 5834!).

*Flowers*: May 1911 (N. Kanara).

*Fruit*: Aug. 1919 (N. Kanara).

*Distribution*: Endemic in Bombay Pres.

#### 19. CHILOCHISTA Lindl. (not in Cke.).

Epiphytic herbs; stem very short, leafless, scaly; roots slender, long. Racemes erect. Sepals and petals similar, broad, spreading, the lateral sepals inserted on the apical portion of the foot. Petals usually running down the foot. Lip movable on the foot, 3-lobed, spur saccate, side lobes erect, midlobe very short; disk with a pubescent callus. Column short; foot broad. Anther 2-celled, pollinia 2, globose, deeply furrowed, caudicle short.

1. *Chilochista glandulosa* *sp. nov.* Blatter & McCann.

[*Orchidacea* vicina *Chilochista pusilla* Schlechter *sed differet ab ea bracteis ovario aequilongis, pedunculis, pedicellis necnon ovaris densissime glandulis albis conicis coopertis, floribus flavis maculis brunneo-rubris ornatis.*]

*Description*: A very small epiphytic plant. Roots loosely tufted, tortuose, up to 15 cm. long and about 2 mm. broad, flattened, when fresh white-satiny with a pinkish tinge, running along the underside of branches. Stem o. Leaves none. Peduncle and raceme about 3-4 cm. long, thin at insertion, thickening upwards, bearing 2-4 flowers, jointed, with a bract at base and at each joint about the same length as the bracts subtending the flower. Peduncles, pedicels and ovaries thickly covered with minute white conical glandular hairs. Racemes about 15 mm. long. Bracts as long as the sessile ovary, 1.5 mm. long, glabrous, veined longitudinally, straw-coloured. Flowers distichous. Sepals yellow, spotted and blotched irregularly and usually densely with brown-red. Dorsal sepal broadly oblong, 5 mm. long, 2.5-3 mm. broad, subobtusate; lateral sepals broadly oblong, subacute, 3.3-5 mm. long, 2 mm.

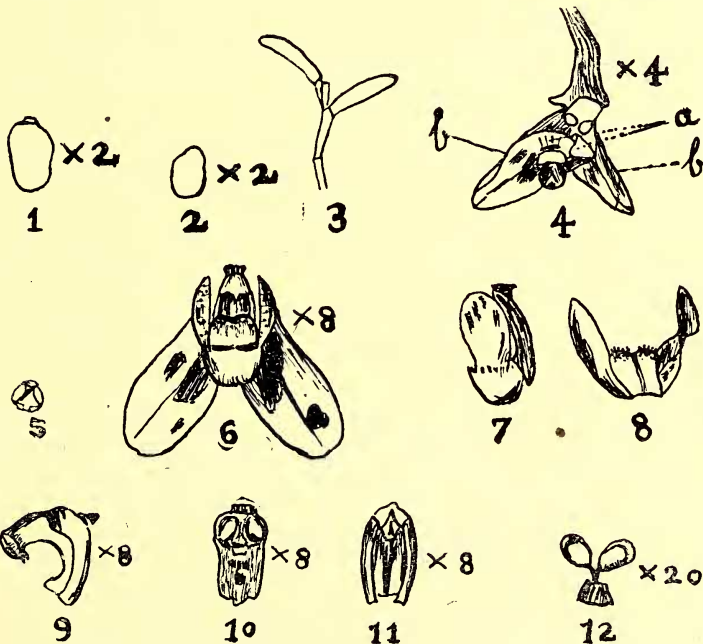
broad. Petals slightly longer than lateral sepals, narrower and subacute at apex, the same colour as the sepals. Lip 3-lobed, 2-3 mm. long, inflexed upon the foot of the column; side lobes more than twice as long as the midlobe, reaching to beyond the inflexed column, then curving towards each other and meeting, even overlapping; midlobe short rounded, slightly emarginate; each little roundish lobe due to the emargination, white-woolly, the woolliness only slightly encroaching upon the upper side of the lip (not visible owing to the inflection of the whole lip). Column very short, scarcely 1 mm. long, somewhat curved, very much bent inwards towards the long foot (about 1 mm. long) to which the lip is joined, white, with the foot purple-blotched. Cap broad, obcordate, yellowish. Rostellum square, transparent, coming away with the gland. Pollinia 2, obovate, slightly compressed, deeply grooved; caudicles short, extensible. The stigmatic surface seems to be a hollow immediately under the rostellum on the front face of the column. Fruit 11 by 2 mm., light green, speckled and blotched with purplish brown, curved thickest in the middle, gradually narrowed into the rhachis, 4-sided, the dorsal and lateral faces slightly ridged down centres, the ventral face broadest with a broad low central longitudinal thickening, the whole surface covered with minute, erect conical whitish glandular hairs. (Most of the description from Bell's MS. prepared from live specimens.)

*Locality*: *N. Kanara*: Karwar (T. R. Bell 4969, type); Dandulli (T. R. Bell); Yellapur, on *Careya arborea* and *Randia uliginosa* (T. R. Bell).

*Flowers*: Jan. 1912 (Yellapur).

*Fruit*: June (Karwar).

*Note*: It is useful to remember that Schlechter has united *Chilochista usneoides* Wight Ic. t. 1741 and *Sarcophilus Wightii* Hook. f. under the name of *Chilochista pusilla*.



*Chilochista glandulosa* sp. nov. Blatter & McCann :

1. Dorsal sepal,  $\times 2$ . — 2. Lateral sepal,  $\times 2$ . — 3. Fruit. — 4, a. Side-lobes of lip,  $\times 4$ . — b. Petals, — 5. Cap. — 6. Flower,  $\times 8$ . — 7. Attachment of dorsal sepal. — 8. Lip — 9. Side view of column and foot,  $\times 8$ . — 10. Top view of same,  $\times 8$ . — 11. Front view of column,  $\times 8$ . — 12. Pollinia with gland,  $\times 20$ .

## 20. RHYNCHOSTYLIS Blume (Cke. ii, 698).

Species 2.—Indo-Malayan.

1. *Rhynchostylis retusa* Blume Bijdr. (1825) 286, t. 49; Hook. f. F.B.I. vi, 32; King & Pantl. in Ann. Roy. Bot. Gard. Calc. viii (1898) 213, t. 284; Trim. Fl. Ceyl. iv, 187; Prain Beng. Pl. 1020; Haines Bot. Bih. & Or. 1178; Brühl Orchids Sikkim (1926) 128; Fischer Fl. Madras, pt. viii (1928) 1440; Cke. ii, 698.—*Saccolabium guttatum* Lindl. in Wall. Cat. (1828) 7308; Dalz. & Gibs. Bomb. Fl. 263; Wight Ic. tt. 1745, 1746; Bot. Mag. t. 4108.—*Aerides retusa* Sw. in Schrad. Journ. II (1799) 233; Grah. Cat. 294.—*A. guttatum* Roxb. Fl. Ind. III (1832) 471.—*Epidendrum retusum* Linn. Sp. Pl. (1753) 1351.

*Description*: Cke. ii, 698.

*Locality*: *Konkan*: (Stocks); Salsette (Dalzell & Gibson, Herb. St. X. C. 8691!); Thana (Ryan 49!); between Chandal and Karjat (Blatter & Hallberg 26534!).—*S. M. Country*: Lanze, on Kolhapur-Ratnagiri Road (R. K. Bhide!); W. of Dharwar (Mrs. Wilkinson 4018!).—*N. Kanara*: Kalanaddi (Ritchie).

*Flowers*: May 1904 (S. M. Country); June 1918 (W. of Dharwar); July 1918 (Salsette).

*Distribution*: Tropical Himalaya from the Punjab eastwards to Nepal, Sikkim and Bhutan, up to 4,000 ft, Assam, Khasia Hills, Chota Nagpur, Konkan, Kanara, Deccan, Circars, Walyar, Malabar Coast, Ceylon, Burma, Malay Peninsula, Siam, Java, Philippines.

## 21. AFRIDES Lour. (Cke. ii, 699).

Species about 50.—Eastern Asia.

Cooke mentions 3 species: *A. maculosum*, *A. crispum* and *A. radicosum*. For the latter we substitute the name *A. ringens* Fischer. Key in Cke. l. c.

1. *Aerides maculosum* Lindl. in Bot. Rep. (1845) t. 53; Dalz. & Gibs. Fl. Bomb. 266; Hook. f. F.B.I. vi, 45; Prain Beng. Pl. 1020; Cke. ii, 699; Haines Bot. Bih. & Or. 1182; Fischer Fl. Madras, pt. viii (1928) 1442.—*Saccolabium speciosum* Wight Ic. tt. 1674, 1675.

*Description*: Cke. ii, 699.

*Locality*: *Konkan*: Near Vehar Lake in Salsette.—*W. Ghats*: Lonavla (Garade!); Khandala (Hallberg!); Panchgani (Cooke, Alice Pigott!); Mahableshwar (Cooke!).—*S. M. Country*: Belgaum, west face of Cheeta Hill (Ritchie 713).

*Flowers*: Jan. 1927 (Salsette); May 1902 (Poona).

*Distribution*: Chota Nagpur, Konkau, S. M. Country, W. Ghats of Bombay and Madras Pres., up to 4,500 ft.

2. *Aerides crispum* Lindl. in Wall. Cat. (1828) 7319; Dalz. & Gibs. Fl. Bomb. 265; Hook. f. F.B.I. vi, 45; Cke. ii, 700; Fischer Fl. Madras, pt. viii, 1442.—*A. Lindleyana* Wight Ic. t. 1677.

*Description*: Cke. ii, 700.

*Locality*: *Konkan*: Between Khandala and Karjat (Herb. St. X. C.!); near Vengurla (Dalzell & Gibson); Wari country (Dalzell & Gibson).—*W. Ghats*: Khandala (Hallberg!); Panchgani (Blatter!); Mahableshwar, very common (Blatter 230!, M. Ezekiel 26572!).—*S. M. Country*: Devarayi, S. M. Railway, 1,800 ft. (Sedgwick 4087 bis!).—*N. Kanara*: Yellapur, 1,500 ft., rainfall 100 in. (T. R. Bell 6061!).

*Flowers*: May 1903 (Poona); June 1925 (Mahableshwar).

*Fruit*: March 1917 (Between Khandala and Karjat).

*Distribution*: Bombay Pres., Nilgiri and Pulney Hills, 3,000–4,000 ft.

3. *Aerides ringens* Fischer Fl. Madras, pt. viii, 1442.—*Saccolabium ringens* Lindl. in Wall. Cat. 7313; Gen. & Sp. Orchid. 220.—*Aerides radicosum* A. Rich. in Ann. Sc. Nat. ser. 2, xv (1841) 65, t. 1, fig. C.; Hook. f. F.B.I. vi, 46; Cke. ii, 700.—*A. lineare* Hook. f. l. c. 47; Trim. Fl. Ceyl. iv (1898) 189.—*Saccolabium lineare* Lindl. in Wall. Cat. 7312.—*S. paniculatum* Wight Ic. t. 1676.—*S. Wightianum* Lindl. in Wall. Cat. 7303; Gen. & Sp. Orchid. 221 (*excl. syn.*); Wight Ic. t. 917.—*S. rubrum* Wight Ic. 1673 (*non* Lindl.).

As *Aerides ringens* Fischer is a combination of 2 species which were considered to be distinct before, we are going to give a description including the characters of *A. radicosum* and *A. lineare*.



Del. C. McCann after Miss E. Bell.

*Luisia truncata* Blatter and McCann, *sp. nov.*



*Description* : Stem short, 4-17 cm. long, as thick as the thumb, with very stout simple vermiform roots. Leaves thickly coriaceous, 10-42 by 0.1-2.5 cm.; scymitar-shaped, linear or linear-oblong, unequally 2-lobed at the apex, keeled, often mottled with purple, bases closely imbricating. Flowers from nearly white to deep rose-pink, in simple or branched racemes or panicles shorter or longer than the leaves; bracts minute, ovate, acute, persistent; pedicels with ovary 6-16 mm. long. Sepals suborbicular; lateral sepals 6 mm. long and as broad as long, broadly elliptic or suborbicular; dorsal sepal 8 by 4 mm., elliptic, obtuse. Petals narrower. Lip 3-lobed; side lobes very small; midlobe ovate; disk with 2 large basal calli; spur cylindric, obtuse, incurved. Anther beaked; caudicle of pollinia short, subtriangular; gland large.

*Locality* : *Konkan* : Salsette (Dalzell & Gibson).—*W. Ghats* : Mahableshwar (Woodrow!).—*S. M. Country* : W. of Astoli (Sedgwick 2323!).—*N. Kanara* : Near Kanapa on the Kalanaddi (Ritchie 715); in forests (T. R. Bell 4089!).—Growing on trees and rocks.

*Flowers* : July 1917 (S. M. Country).

*Distribution* : Konkan, S. M. Country, N. Kanara, W. Ghats of Bombay and Madras Pres., 800-8,000 ft., Ceylon.

22. *LUISIA* Gaud. (Cke. ii, 791).

Species 35.—Tropical Asia to Japan.

Cooke gives 2 species as belonging to the Bombay Pres. We add 4 new species.

Key :

- I. Petals as long as the lateral sepals or only slightly longer
  - 1. Petals linear-oblong, obtuse ... .. 1. *L. teretifolia*.
  - 2. Petals strap-shaped, truncate ... .. 2. *L. truncata*.
- II. Petals much longer than the lateral sepals
  - 1. Leaves not caudate
    - a. Leaves rounded at apex .... 3. *L. tenuifolia*.
    - b. Leaves sharp-pointed at apex ... 4. *L. pseudotenuifolia*.
    - c. Leaves rounded at apex with a short conical apiculus ... .. 5. *L. macrantha*.
  - 2. Leaves long-caudate .... 6. *L. Evangelinae*.

1. *Luisia teretifolia* Gaud. Bot. Freyc. Voy. (1826) 427, t. 37; Hook. f. F.B.I. vi, 22; King & Pantl. in Ann. Roy. Bot. Gard. Calc. viii (1898) 202, t. 271; Trim. Fl. Ceyl. iv, 190; Prain Beng. Pl. 1018; Brühl Orch. Sikkim (1926) 123; Fischer Fl. Madras, pt. vi, (1928) 1438.—*Cymbidium triste* Roxb. Hort. Beng. (1814) 63; Bot. Mag. t. 3648; Wight Ic. t. 911 (*text. tantum*).—*C. tenuifolium* Wight. Ic. t. 1689 (*textu excl.*).

*Locality* : *Konkan* : Vettora (Sabnis!).—*S. M. Country* : Devicop (Sedgwick 5786!).—*N. Kanara* : Usheli (Ritchie 1417); Wadehukli, 1,500 ft. (T. R. Bell 6078! *bis.*), in forests (T. R. Bell 5414!).

*Flowers* : May 1919.

*Distribution* : Sikkim, Khasia Hills, Bengal Pegu, Andamans, Konkan, S. M. Country, N. Kanara, W. Ghats of Madras Pres., 3,000-4,000 ft., Vizagapatam Hills at 4,000 ft., Ceylon.

2. *Luisia truncata* *sp. nov.* Blatter & McCann. [*Orchidacea vicina Luisiae teretifoliae* Gaud. et *L. brachystachyae* Blume, sed differt ab eis foliis apice apiculatis petalis liguliformibus apice truncatis et epichilio 3-lobulato.]

*Description* : Stem stout; internodes short. Leaves comparatively stout, up to 11 cm. long, spreading, flexuose, uniformly thick throughout, green or greenish, blotched with purple, apiculate at apex. Rhachis a few mm. long, few-flowered (about 3). Flowers small, about 10 mm. wide. Dorsal sepal up to 5 mm. long, a little more than 2 mm. broad, oblong, acute, slightly concave, tip incurved yellowish green outside, greenish purplish inside. Lateral sepals ovate, subacute, boat-shaped, size of dorsal sepal, yellowish green outside, spotted with dingy purple inside. Petals slightly longer than sepals, strap-shaped, truncate at apex, greenish yellow on both sides, spreading, tips bent forward and downwards. Lip

in general outline obovate, a little longer than the sepals, about 7 mm., purple, deeply constricted between hypochile and epichile; hypochile quadrate, concave, a little shorter than the epichile, distal corners rounded; epichile broadly ovate, broader than hypochile, 3-lobulate, all lobules rounded, central one double the diameter of the lateral ones, a few yellow streaks from the constriction forward. Anther 2-celled. Capsule shortly stalked, about 18 mm. long, 3-4 mm. diam., slightly thicker upwards, but again contracting towards the apex. (Described from detailed coloured illustrations prepared under T. R. Bell's direction by Miss E. Bell.)

*Locality*: N. Kanara: Yellapur (T. R. Bell).—W. Ghats: Castle Rock (T. R. Bell).

*Flowers*: May 1911.

*Fruit*: July 1911.

3. *Luisia tenuifolia* Blume Rumph. iv (1848), 50; Dalz. & Gibs. Fl. Bom. 266; Hook. f. F.B.I. vi, 24; Trim. Fl. Ceyl. iv, 191; Fischer Fl. Madras pt. vi (1928) 1438.—*Cymbidium triste* Wight Ic. t. 911 (*ic. tantum*).—*C. tenuifolium* Lindl. Gen. & Sp. Orchid. (1833) 167; Grah. Cat. 203.

*Locality*: Add: W. Ghats: Castle Rock (Bhide!).

*Distribution*: Konkan, N. Kanara, W. Ghats of Bombay Pres., Madras Pres.: W. Ghats, Melpat in S. Arcot, near sea-level to 4,000 ft.

4. *Luisia pseudotenuifolia* sp. nov. Blatter & McCann.

[*Orchidacea similis Luisiæ tenuifoliæ* Blume a qua tamen differt caulis internodiis longis, foliis ad apicem acumine præditis sepalo laterali apiculato, sepalo dorsali lineari, longitudine petalorum et labii relativa.]

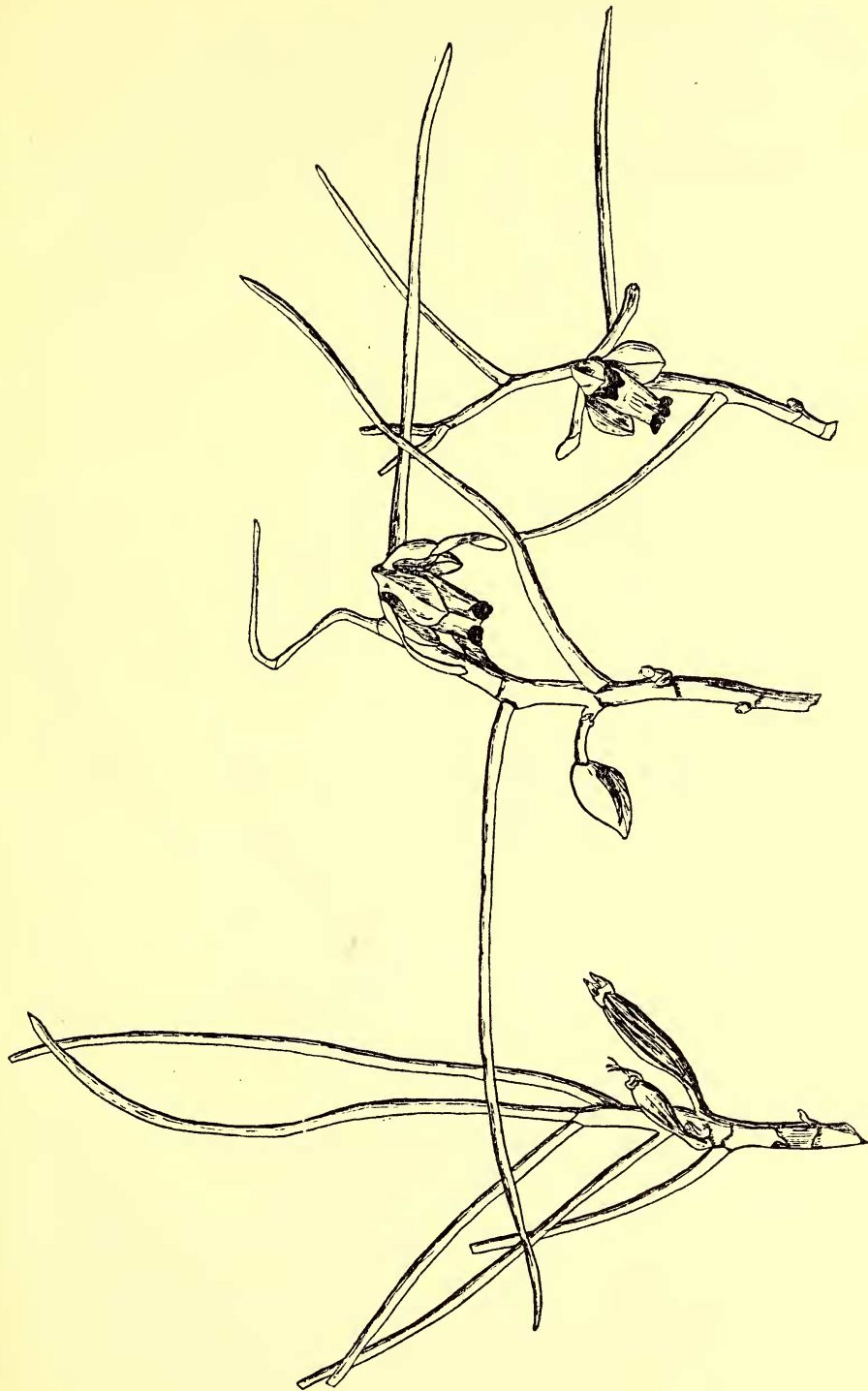
*Description*: Stem very long, slender; internodes long, 2-2.5 cm. Leaves up to 20 cm. long, very thin, mostly straight, spreading, forming a knee 2 or 3 cm. from the apex and at the same time becoming much thinner and finally ending in a very thin sharp point. Rhachis of spikes few-flowered, up to 14 mm. long, considerably thinner than the stem. Dorsal sepals linear, rounded at apex, 10 mm. long, 2-3 mm. broad; lateral sepals ovate-oblong, broadly apiculate, concave, 10 mm. long, 3-4 mm. broad. Petals linear, obtuse at apex, slightly broadening and bent in the upper half, about 20 mm. long, 2-3 mm. broad. Lip narrowly panduriform, 13-14 mm. long, 3-4 mm. broad, with 2 small rounded spreading lobes at the base and 2 short square, diverging lobes at the apex, these lobes about 2 mm. long and over 1 mm. broad. Column stout, much shorter than the lip. Pollinia 2, ovoid. Fruit not seen.

*Locality*: N. Kanara: In forests (T. R. Bell 5401, type, 5411, cotype).—Found by T. R. Bell in 1907.

5. *Luisia macrantha* sp. nov. Blatter & McCann.

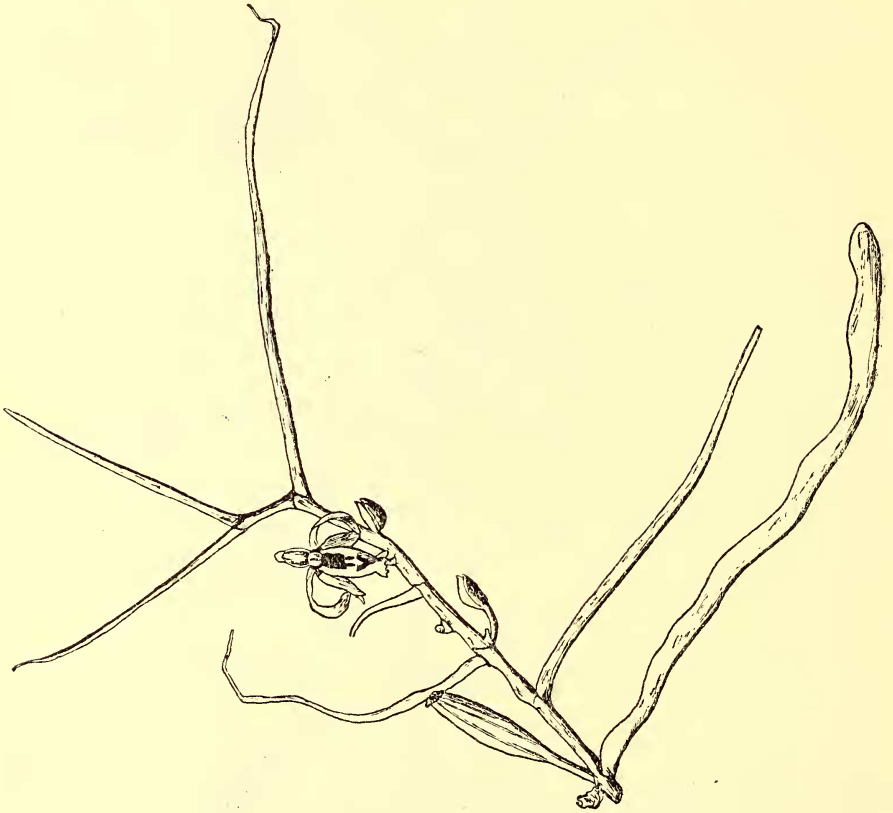
[*Orchidacea ab omnibus aliis Luisiæ speciebus distinguitur florum magnitudine multo maiore, petalis linearibus 4 cm. attingentibus. Differt a Luisia tenuifolia* Gaud. cui est vicina labio late oblongo, foliis apice conico-apiculatis, partibus omnibus multo maioribus.]

*Description*: Stem more than 50 cm. high, stout, almost uniformly so from base to tip, branched or unbranched, dark brown with green shade, branches almost the same thickness as the stem; internodes 2.5-3.5 cm. long; roots vermiform, stout, up to 20 cm. long. Leaves up to 20 cm. by 3 mm., cylindrical, variable in thickness, light or dark green, spreading or ascending, straight or flexuose, the tip bluntly rounded with a short conical apiculus at outer side. Buds triangular in section, subobtuse at apex, arising from a woody cylindrical support which is covered with membranous closely appressed brownish grey sheaths, with more opaque, lighter coloured annular edges. Flowers few short in extraaxillary usually 1-flowered spikes reaching with the peduncle about 2.5 cm., very large, measuring in their natural state 3 by 3 cm., when spread out, up to 8 cm. wide and over 6 cm. from the tip of the dorsal sepal to the end of the lip. Sepals equal in size, boat-shaped, 1.6-2.5 by 1-1.5 cm., slightly submarginate-apiculate at apex, surface shagreened, apple-green, blotched with purplish red, lateral sepals underneath mostly purple-red. Petals long and narrow, linear, pointed obliquely at apex, curved outwards and then inwards, 2.5-4 cm. by 3 mm., apple-green outside and on the distal half of the inside, the basal half of the inside nearly completely purple-red. Lip broadly oblong, slightly dilated before middle, somewhat constricted just before the



Del. C. McCann after Miss E. Bell.

*Luisia macrantha* Blatter and McCann, sp. nov.



*Del. C. McCann after Miss E. Bell.*

*Luisia Evangelinae* Blatter and McCann, *sp. nov.*

endlobes, 2.5-3 cm. long, 5-8 mm. across where broadest, 6 mm. broad at base, endlobes well developed, rounded, diverging; hypochile very broad at base, square, with a small rounded lobe at each basal outer corner, separated from the epichile by an impressed semi-circular curve with the convexity outwards; calli on epichile 3, parallel and close together, the central one triangular in section, high, gradually increasing in height forwards to beyond the middle of its length, then suddenly decreasing to end in the little point separating the endlobes, the lateral calli very much lower, roundly convex in transverse section, slightly higher in centre of their course; endlobes 1.5-3 mm. long. Colour of lip: Apple-green, the calli darker, endlobes very dark purple, hypochile dark purple except its margins which are increasingly apple-green from base forwards, underside apple-green with half its length in centre dark purple-red. Column opaque white, short, semi-circular in transverse section, the front completely hollowed and containing the stigmatic surface, the top slightly concave, the semi-elliptical gland with its 2 sessile anther-lobes separate one from the other but touching, occupying about  $\frac{1}{2}$  of the area from front backwards and sideways; length of column about 5 mm., breadth 4 mm. Pollen-masses ovoid, 1 mm. long by less in breadth. Anther-cap squarish with round corners, broadest in front, convex, divided into 2 by a depressed central line, separating the 2 chambers which underneath are partially covered by a membrane; cap white slightly sprinkled purple. Length of twisted ovary 2.2 cm. Capsule 3.5-4 cm. long, spindle-shaped, slightly ridged, rising at an angle of 45°.

This species is a very distinct one. On account of the great size of the flowers and the characteristic shape of the various flower-parts, it cannot easily be confounded with any other species of the genus.

It comes nearest to *L. tenuifolia* but the following points distinguish our species at once: The leaves are not rounded at the apex, but conical-apiculate; the flowers are much larger in all their parts; the sepals resemble each other, all are boat-shaped and the apex is submarginate-apiculate; the lip is not narrowly pandurate but broadly oblong.

*Locality*: *N. Kanara*: In forests (T. R. Bell 5397, 5400, type, 5414, cotype); Yellapur (T. R. Bell 5398); Anmod, on *Zizyphus*, alt. 2,000 ft. (Sedgwick 3224!).—We made also use of a coloured plate by Miss E. Bell and MS. notes by T. R. Bell.

*Flowers*: Nov. 1919 (Yellapur); Dec. 1907 (Anmod).

*Note*: The plants are not easy to see owing to the leaves looking like stems or twigs and the flower, being always bent with its face to the stem, is most inconspicuous by reason of the green and red colouring.

6. *Luisia Evangelinae* sp. nov. Blatter & McCann.

[*Orchidacea similis Luisiae tenuifoliae, differt tamen foliis apice longe caudatis, sepalis lateralibus subfalcatis, dorsali in dorso subcarinato.*]

*Description*: Stem long, slender, olive-green above with dark red-brownish spots and blotches. Roots very stout, vermiform, fleshy. Leaves up to 18 cm. long, 1-2 mm. in width, long-tailed at apex, tail about 2 cm. long and more or less jointed to rest of leaf, and projecting in a different plane. Buds seen from side triangular, the dorsal sepal flat and convex, broader than the 2 lateral mucronate ones which are keeled in the line of junction and rather prominently winged where they meet the dorsal one. Pedicel half as long as the bud, springing from a short woody support out of a short rounded brown bract; if several arise from one support, the support is just above a leaf, but not necessarily on the opposite side of the stem; base of bud suddenly narrowed into the ovary. Flowers very few, 18 mm. long, 20 mm. broad. Lateral sepals boat-shaped, slightly falcate, 8 by 3 mm. greenish, base red-brown. Dorsal sepal slightly longer, dorsally slightly keeled, obtuse at apex, greenish, base red-brown, spotted with red-brown on back. Petals longer than sepals, narrow, 15 by 1.5 mm.; rounded at apex, upper half apple-green inside, becoming purple towards the base, outside light purplish. Lip panduriform, about 13 mm. long, broad and square at base with 2 small rounded lobes; epichile decreasing in width towards apex, constricted in a wide curve to broaden out again into 2 diverging up-turned lobes 1.5 mm. long; disk with 3 calli, one central rather broad, triangular in transverse section, highest in middle, having its origin at commencement of epichile, running to and between the lobes, the lateral, one on each side, immediately contiguous, somewhat broad, but of uniform height more or less throughout, only on epichile; hypochile smooth,

flat. Colour of lip : white with a decided green tinge, hypochile dark purple in the middle throughout its length, each basal lobe with a central dark purple spot; the epichile sometimes with a chevron-shaped mark (the hollow side inwards), this chevron being sometimes reduced to a spot; the purple mark of the hypochile thinly prolonged on each side, sometimes up to the chevron which is, however, always separate, each prolongation sometimes reduced to a spot; the epichile is separated from the hypochile by a semi-circular slightly impressed curve, the purple marking of the hypochile bordered irregularly towards the epichile. Column very short, semi-elliptical in transverse section, the truncation being the front, slightly broader at top. Pollinia 2, ovoid, sessile, divergent from contiguous bases; gland large, deep purple-coloured; cap nearly pure white, the same shape as in *L. tenuifolia*. Capsule spindle-shaped, stalked, ridged, suberect.

*Locality* : *N. Kanara* : Astoli and Chandwadi (T. R. Bell, MS. and painting by Miss Evangeline Bell).

*Flowers* : April 1911.

### 23. COTTONIA Wight (Cke. ii, 702).

Species 2.—Ceylon to China.

We retain the one species given by Cooke :

1. *Cottonia macrostachya* Wight. Ic. v, pt. 1 (1852) 21, t. 1755; Dalz. & Gibs. Bomb. Fl. 263; Bot. Mag. t. 7099; Hook f. F.B.I. vi, 26; Trim. Fl. Ceyl. iv, 203; Cke. ii, 702; Fischer Fl. Madras, pt. viii, (1928) 1439.

*Description* : Cke. l. c.

*Locality* : *Konkan* (Stocks, Dalzell 4).—*N. Kanara* : Supa (Ritchie 1424.); Yellapur, 2,000 ft. (Sedgwick 2494 bis!); Astoli (T. R. Bell!); without locality (T. R. Bell 6062 bis!).

*Flowers* : May 1911 (Astoli); May 1917 (Yellapur); June 1919 (N. Kanara).

*Fruit* : May 1911 (Astoli); May 1917 (Yellapur).

*Distribution* : *Konkan*, *N. Kanara*, *Malabar*, *Anamalais* at 2,000 ft., *Travancore*, *Ceylon*.

### 24. VANDA R. Br. (Cke. ii, 703).

Species about 45.—Tropics and subtropics.

Cooke has 2 species : *V. parviflora* Lindl. and *V. Roxburghii* R. Br.; the latter name has to be changed into *V. tessellata* Hook.

1. *Vanda parviflora* Lindl. in Bot. Reg. xxx (1844) Misc. 45; Wight Ic. t. 1669; Hook. f. F. B. I. vi, 50; Trim. Fl. Ceyl. iv, 192; King & Pantl. in Ann. Roy. Bot. Gard. Calc. viii (1898) 215, t. 286; Prain Beng. Pl. 1021; Cke. ii, 703; Haines Bot. Bih. & Or. 1181; Brühl Sikkim Orchid. 129; Fischer Fl. Madras pt. viii, (1928) 1444.—*Aerides Wightianum* Lindl. in Wall. Cat. 7320; Dalz. & Gibs. Bomb. Fl. 265; Wight Ic. v, pt. i (1852) 8.

*Locality* : Add : *S. M. Country* : Devicop, Dharwar Dist. 1,800 ft. (Sedgwick 5927!).—*N. Kanara* : Yellapur (Sedgwick 2478!); Wadchukli (T. R. Bell!).

*Flowers* : May 1887 (Poona, cult.); May 1817 (Yellapur); May 1911 (Wadchukli).

*Fruit* : April 1919 (Devicop); May 1917 (Yellapur); May 1911 (Wadchukli).

*Distribution* : *Kumaon*, *Nepal*, *Sikkim*, *Assam*, *Burma*, *Chota Nagpur*, *Konkan*, *W. Ghats*, *S. M. Country*, *N. Kanara*, in all districts of Madras Pres. in hilly tracts, 1000–4,000 ft.

2. *Vanda tessellata* Hook. ex G. Don in Lond. Hort. Brit. 372; Fischer Fl. Madras pt. viii (1928) 1445; Haines Bot. Bih. & Or. 1181.—*Epidendrum tessellatum* Roxb. Corom. Pl. t. 42.—*Cymbidium tessellatum* Swartz in Nov. Act. Upsal. vi, 75; Roxb. Fl. Ind. iii (1832) 463.—*C. tesselloides* Roxb. Fl. Ind. l.c.—*Aerides tessellatum* Wight in Wall Cat. 7318.—*Vanda tesselloides* Reichb. f. Walp. Ann. vi, 864.—*V. Roxburghii* R. Br. in Bot. Reg. vi (1820) t. 506; Wight Ic. t. 916; Hook. f. F. B. I. vi. 52; Trim. Fl. Ceyl. iv, 192; Duthie Ann. Roy. Bot. Gard. Calc. ix, t. 116; Prain Beng. Pl. 1021; Cke. ii, 704.

*Locality* : *Gujarat* : Chikli (Gibson).—*Konkan* (Woodrow!).—*N. Kanara* : Kalanuddi (Ritchie 1425); Astoli (Bell!); in forests (Bell 5399!).

*Flowers* : April 1911 (Astoli).

*Fruit* : April 1911 (Astoli).

*Distribution* : Forests of Dehra Dun and in the sub-Himalayan tracts of Rohilkhand and N. Oudh, Bengal, Bihar, Chota Nagpur, Central Prov., Gujarat, Konkan, N. Kanara, in all districts of Madras Pres., about sea-level to 2,000 ft., Travancore, Ceylon.

25. DIPLOCENTRUM Lindl. (Cke. ii, 704).

Species 2.—India.

1. *Diplocentrum congestum* Wight Ic. v, pt. 1 (1852) 10, t. 1682; Hook. f. F.B.I. vi, 78; Rolfe in Hook. Ic. Pl. xxvii (1901) t. 2687; Cke. ii, 704; Fischer Fl. Madras, pt. viii (1828) 1449.

*Locality* : *W. Ghats* : Castle Rock (T. R. Bell 7505!).—*N. Kanara* : Sirsikumpta road (Woodrow!).

*Flowers and fruit* : May 1920 (Castle Rock).

*Distribution* : N. Kanara, W. Ghats of Bombay and Madras Pres., Travancore.

26. ACAMPE Lindl. (Cke. ii, 705).

Species about 15.—East Africa, Madagascar, India, Malacca, China.

There is only one species in Cooke : *A. Wightiana* Lindl. We change its name into *A. præmorsa*.

1. *Acampe præmorsa* nov. comb. Blatter & McCann.—*Epidendrum præmorsum* Roxb. Corom. Pl. t. 43.—*Cymbidium præmorsum* Swartz in Nov. Act. Upsal. vi, 75; Roxb. Fl. Ind. iii (1832) 465.—*Aerides præmorsum* Grah. Cat. 204 (non Willd.).—*Saccolabium præmorsum* Hook. f. F.B.I. vi (1890) 62; Prain Beng. Pl. 1022; Haines Bot. Bih. & Or. 1180.—*Acampe Wightiana* Lindl. Fol. Orchid. (1853) 2; Cke. ii, 705; Fischer Fl. Madras, pt. viii (1828) 1447.—*A. excavata* Lindl. Fol. Orchid. l. c. 3.—*Saccolabium Wightianum* Hook. f. F. B. I. vi (1890) 62; Trim. Fl. Ceyl. iv, 199; Petch in Ann. Roy. Bot. Gard. Peradeniya 7 (1920) 79–83.—*Vanda Wightiana* Lindl. ex Wight Ic. v, pt. 1 (1852) 9, t. 1670.—*Saccolabium papillosum* Dalz. & Gibs. Bom. Fl. (1861) 264 (non Lindl.).

*Description* : Cke. ii, 705.

*Locality* : *Konkan* : Kanheri, Thana Dist. (Gamme 16273!); Thana Dist. (Ryan 5! Herb. Calc.); Bhandup (Blatter 25820!); Condita, Salsette (Blatter 25816!); Sion (Blatter 15371!); Indapur (Graham).—*S. M. Country* : Belgaum (Ritchie 716); Devicop (Sedgwick 4084!).—*N. Kanara* : Dandeli (Sedgwick 2546!); in forests (Bell 5398!).

*Flowers* : May.

*Fruit* : July.

*Distribution* : Bengal, Chota Nagpur, Bombay Pres., W. Ghats of Madras Pres., Circars, Godavari Dist., Ceylon.

27. SARCANTHUS Lindl. (Cke. ii, 706).

Species about 90.—Ceylon, India to New Guinea.

Only one species from the Presidency, *S. peninsularis* (called by Cooke *peduncularis* by mistake).

1. *Sarcanthus peninsularis* Dalz. in Hook. Kew Journ. Bot. iii (1851) 343; Dalz & Gibs. Bomb. Fl. 264; Hook. f. F.B.I. vi, 67; Trim. Fl. Ceyl. iv, 200; Fischer Fl. Madras, pt. viii (1928) 1447; Rolfe in Kew Bull. (1914) 71.—*S. pauciflorus* Wight Ic. (1852) t. 1747.—*Saccolabium acuminatum* Thw. Enum. Pl. Ceyl. (1861) 304.

*Description* : Cke. ii, 706.

*Locality* : *Konkan* : (Stocks 35); Wari country (Dalzell).—*N. Kanara* : Kalanaddi (Ritchie 430); Arbail Ghat, 1,550 ft. (Sedgwick 5836 bis!); Yellapur, 1,500 ft. (T. R. Bell 7870!); Anshi (T. R. Bell!).

*Flowers* : May (Anshi).

*Fruit* : Aug. 1919 (Arbail Ghat).

*Distribution* : Konkan, N. Kanara, W. Ghats of Madras Pres., Travancore, Ceylon.

(To be continued.)